FORUM

Winning the Weevil War: Beating a $22 Billion Bug

The Agricultural Research Service's mission is to solve agricultural problems of national and regional importance. Research that is helping vanquish the boll weevil certainly fulfills that charge. Problems don't come much bigger than the boll weevil.

One of the top two or three insect pests that the United States has ever had to deal with, the boll weevil has been a major economic and environmental catastrophe, especially in the South. This pest has laid waste to cotton for more than 100 years, forcing growers either to abandon the crop or to use large quantities of insecticides in a constant and often losing battle to produce a profit.

Where the boll weevil made cotton growing untenable, the economic ripple was often devastating. Many experts name the boll weevil as second only to the Civil War as an agent of change in the South. Over the years, boll weevil damage has totaled more than $22 billion in yield losses and control costs.

Now, for the first time since the boll weevil entered the United States in 1892, the end of the problem is in sight. By 2006, it is entirely possible that boll weevil management will consist of keeping the insect out of the country instead of controlling its damage.

It has taken a team effort to reach this point.

USDA's Animal and Plant Health Inspection Service (APHIS) is the lead agency of the boll weevil eradication program. But no one agency or institution could ever tackle a problem this big alone. We are talking about more than 15 million cotton-growing acres in 17 states and an insect that has been enormously difficult to control. ARS has the responsibility to provide research and technical support to the program.

Before an eradication program begins in their region, growers must vote in favor of it, and they pay for 70 percent of the program with an assessment on their cotton acreage. The remaining funds come from state and federal dollars.

The National Cotton Council of America and other industry groups have championed the cause of boll weevil eradication. And the states and their cooperative extension services have worked tirelessly. But it is research by ARS and others, including many universities and state experiment stations, that has laid the foundation on which this eradication has been built.

For eradication to be feasible, scientists first had to develop an understanding of the pest's biology to be able to create effective, efficient control methods. Once the basic work was done, it has been a continuing research cycle to improve and more tightly target control techniques. Many of the major milestones in developing control strategies have come from ARS laboratories. And it was ARS scientists who put all the research together to create the model for areawide boll weevil eradication.

When the first full-scale eradication trial began in 1978 in southern Virginia and northern North Carolina, three ARS scientists moved to Raleigh from the ARS Boll Weevil Laboratory in Starkville, Mississippi, to provide research support to make the program work. A modular building was built on the North Carolina State University campus to house both the ARS scientists and the APHIS personnel who conducted the program.

ARS has continued to respond to new challenges as eradication progressed. But identifying research needs has been done cooperatively by all groups involved in the effort.

Today, all cotton-growing states have eradication programs.

Boll weevil eradication has been a truly model program, in terms of both eliminating the pest and exemplifying successful public-private cooperation.

Benefits from boll weevil eradication are staggering. Cotton production has already increased by hundreds of thousands of acres in states where the crop had nearly disappeared.

Where this pest is eliminated, growers typically experience an increase in cotton yield of up to 10 percent—more in some areas. Moreover, resurgence of beneficial insects preying on other cotton pests further reduces the need for pesticides, resulting in additional cost savings.

The public is also benefiting—from the preservation of an important domestic crop. Today, the United States is second only to China in cotton production and is the leading exporter, accounting for 25 to 30 percent of global trade in raw cotton. The U.S. cotton industry accounts for more than $25 billion in products and services annually and generates over 400,000 jobs from farm to textile mill.

Beyond the economic benefit, eradicating the boll weevil means significantly less pesticide introduced into the environment. After the boll weevil is eradicated from an area, farmers generally reduce pesticide use by 40 to 90 percent.

Few programs tackling a problem this big can claim the level of success achieved by those involved in boll weevil eradication. Thanks to this program, the boll weevil may someday be as little known in the United States as screwworm and polio—historically interesting, but really just the domain of a few sentinels safeguarding against the return of a distant enemy.

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